DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-001198
Date Inspected: 07-Jan-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 830
OSM Departure Time: 1730
Location: Shanghai, China

CWI Name:	See Below	**CWI Present:**	☑ Yes ☐ No
Inspected CWI report:	☐ Yes ☑ No ☐ N/A	**Rod Oven in Use:**	☑ Yes ☐ No ☐ N/A
Electrode to specification:	☑ Yes ☐ No ☐ N/A	**Weld Procedures Followed:**	☑ Yes ☐ No ☐ N/A
Qualified Welders:	☑ Yes ☐ No ☐ N/A	**Verified Joint Fit-up:**	☑ Yes ☐ No ☐ N/A
Approved Drawings:	☑ Yes ☐ No ☐ N/A	**Approved WPS:**	☑ Yes ☐ No ☐ N/A
		Delayed / Cancelled:	☐ Yes ☑ No ☐ N/A

Bridge No: 34-0006
Component: Tower and OBG Fabrication

Summary of Items Observed:

Caltrans Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. The QA Inspector observed the following:

Orthotropic Box Girder (OBG) and Tower Mock Up:

CWI Inspectors: Wu Wei Qing, Wu Ming Kai

Bay 3:

The QA Inspector observed ZPMC welder Mr. Wang Zhonghua stencil 53753 is using welding procedure specification WPS-B-P-2112-FCM using the shielded metal arc welding process for fillet tack welds on OBG PL64B side plate SP003 stiffener weld SP003-01-030 and SP003-01-031. The QA Inspector observed E7018 4.0 mm diameter electrodes and a welding current of approximately 185 amps. The QA Inspector observed ZPMC personnel were using a torch to apply heat to one side of the stiffener plate that is to be tack welded and the opposite side of the stiffener plate, within 75 mm distance is not being preheated. AWS D1.5 2002 paragraph 4.2.7 states: "When the base metal is below the temperature listed for the welding process being used and the thickness of material being welded, it shall be preheated (except as otherwise provided) in such a manner that the steel on which weld metal is being deposited is at or above the specified minimum temperature for a distance equal to the thickness of the part being welded, but not less than 75 mm [3 in.] in all directions from the point of welding.

" The QA Inspector asked ZPMC QC Inspectors Mr. Wu Ming Kai and Mr. Wu Wei Qing if they were aware AWS D1.5 requires all of the base material within 75 mm of the weld needs to be preheated prior to welding. Mr. Kai said he thought AWS only required the base material within 50 mm of the weld needs to be preheated. Mr. Wu Wei Qing later said he has reviewed AWS D1.5 and he agrees all base material within 75 mm distance needs to be preheated prior to tack welding, and ZPMC QC Inspectors will be verifying both sides of stiffener plates are preheated prior to welding. Items observed by the QA Inspector do not appear to fully comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Liu Zihong stencil 62447 is using welding procedure specification WPS-B-T-2132-2 using the flux cored welding process for fillet tack welds on OBG PL71B side plate SP011 stiffener weld SP011-01-021 and SP011-01-022. The QA Inspector observed a welding current of approximately 260 amps 28.4 volts and the base material had been preheated to a minimum of 60°C. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC personnel perform heat straightening of OBG PL96B base plate BP001 as directed by HSR1(B)-107. The QA inspector observed Quality Control Inspector Mr. Duan Yabing monitoring the heat temperature using a laser indicating device. A review of the heat straightening documents on Mr. Yabling's clipboard reveals the completed heat straightening documents do not have any names of the QC Inspector who recorded the temperatures or dates when the heat straightening was completed. The QA Inspector asked ZPMC QC/CWI Inspector Mr. Wu Ming Kai if he was aware of the missing names and dates on these documents. Mr. Kai said these are field documents and the final report will have the names and dates, and he will tell Mr. Yabling to add his name and the dates of the heat straightening to these documents. Items observed do not appear to fully comply with project specifications.

The QA Inspector performed random visual inspections and magnetic particle inspections of portions of OBG PL73B side plate SP013 stiffener fillet tack welds BP013-01-030 through BP013-01-043. The plates are being placed on a pre-camber table in order to minimize weld distortion. A heavy weight had been placed in various locations on the side plate prior to clamping of the edges of the plate. Items observed by the QA Inspector appear to comply with project specifications. See the photographs below for additional information.

WELDING INSPECTION REPORT

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Summary of Conversations:

See above for summary of conversations.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Dawson,Paul	Quality Assurance Inspector
Reviewed By:	Cochran,Jim	QA Reviewer